

# PATENT COOPERATION TREATY

From: INTERNATIONAL SEARCHING AUTHORITY

DrW Smi Kn

To:

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**PCT**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) See Form PCT/ISA/210 (sheet 2)

Applicant's or agent's file reference  
See Form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/EP2005/000347

International filing date (day/month/year)  
14 January 2005

Priority date (day/month/year)  
15 January 2004

International Patent Classification (IPC) or both national classification and IPC  
F02B33/34, F02B41/10, F02B37/10, F02B37/00, F02B39/08, F16D33/16

Applicant  
VOITH TURBO GMBH & CO. KG

[Stamp] Received Dr. Weitzel & Partners 25 April 2005 RL: 10/01 VL: 10/15 Final deadline 11/15/05

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step, and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step, or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be the written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE  
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International Application No.  
PCT/EP2005/000347

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ The Office Action is based on the translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1 (b))
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material
    - ☐ on paper
    - ☐ in electronic form
  - c. time of filing / furnishing
    - ☐ contained in the international application as filed
    - ☐ filed together with the international application in electronic form
    - ☐ furnished subsequently to this Authority for the purposes of search
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
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PCT/EP2005/000347

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**Box No. V Reasoned statement under Article 43bis.1(a)(i) with regard to novelty, inventive step,  
and industrial applicability; citations and explanations supporting such statement**

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|-------------------------------|--|
| 1. Statement                  |  |
| Novelty (N)                   | Yes: Claims 2, 3, 6-10<br>No: Claims 1, 4, 5 |
| Inventive step (IS)           | Yes: Claims 2, 3<br>No: Claims 1, 4-10       |
| Industrial applicability (IA) | Yes: Claims: 1-10<br>No: Claims:             |

2. Citations and explanations:

See Annex

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**Box No. VII Certain defects in the international application**

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It was found that the international application has the following defects in form or content:

See Annex

**Regarding point V:**

- 1 Reference is made to the following documents:  
D1: EP 0 301 547 A (ISUZU MOTORS LIMITED) February 1, 1989 (02/01/1989)
- 2 INDEPENDENT CLAIM 1
- 2.1 The present application does not comply with the requirements of PCT Article 33(1), because the subject of claim 1 is not novel in the sense of PCT Article 33(2).  
Document D1 discloses (the references in parentheses refer to this document) a turbo-compound system, having a crankshaft (15) driven by an internal combustion engine (1);  
having an exhaust gas turbine (12) arranged in the exhaust-gas flow of the internal combustion engine (1);  
having a hydrodynamic coupling (21), comprising a primary impeller (21b) and a secondary impeller (21c), which together form a working chamber (21b, 21c), which can be filled or is filled with a working medium, the hydrodynamic coupling (21) being arranged in a driven connection between the crankshaft (15) and the exhaust gas turbine (12) in such a way that, when the working chamber (21b, 21c) of the hydrodynamic coupling (21) is filled, for the exhaust gas turbine (12) driven by an exhaust gas flow, driving power is transmitted from the exhaust gas turbine (12) to the crankshaft (15);  
whereby a switching means (40) for reversing the direction of rotation of the primary impeller or of the secondary impeller of the hydrodynamic coupling (21) is provided.
- 3 DEPENDENT CLAIMS 4-10  
Claims 4-10 contain no features that, in combination with the features of any claim to which they refer, comply with the requirements of the PCT in regard to novelty or inventive step.
- 3.1 Because all features of claims 4, 5 are disclosed in D1, the technical content of this claim/these claims is not novel.

3.2 What is involved in claims 6 to 10 is only one of several obvious possibilities, from which the person skilled in the art would select according to circumstances without inventive step in order to solve the problem posed (to position a switching gear for reversing the direction of rotation of the exhaust gas turbine between the crankshaft and the exhaust gas turbine).

**4 DEPENDENT CLAIMS 2, 3**

The combination of features contained in the dependent claims is neither known from the prior art, nor is it obvious from the prior art.

The reasons for this are the following:

4.1 The feature "switching means for reversing the direction of rotation of the primary impeller, which is arranged on the side of the exhaust gas turbine of the hydrodynamic coupling, changes the flow direction of the exhaust gas in such a way that the direction of rotation of the exhaust gas turbine is reversed (claim 2) is neither known from D1, nor is it obvious from D1.

4.2 Claim 3 is dependent on claim 2 and accordingly fulfills as well the requirements of the PCT in regard to novelty and inventive step.

**Regarding Point VII.**

According to the requirements of PCT Rule 11.13 I), reference symbols mentioned in the description and in the claims may not fail to appear in the drawings and vice versa.